The Lizards

of

Tanganyika Territory

by

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PRINTED BY THE GOVERNMENT PRINTER, DAR ES SALAAM.

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The manuscript of the following article was handed in at Dar es Salaam just before the writer left for England on leave. No opportunity for proof-reading was possible, hence the many omissions in punctuation and not a few printer's errors in the spelling of scientific names.

A. L.

The Lizards of Tanganyika Territory.

For an area of 365,000 square miles situated so near the equator as Tanganyika Territory the number of species of lizards which have been found within its borders is really surprisingly small for even after including several geographical races of doubtful validity the sum total is only eighty.

With the exception of some of the geckos they are all diurnal in habit, and whilst the majority are terrestial not a few are arboreal, others subterranean and at least one of the monitors is as much at home in the water as on land.

In size they range from small geckos one and a half inches long to five foot monitors which are the giants of the sub-order. No African lizard is venomous and few even attempt to bite, large specimens of the common house-haunting Striped Skink can just draw blood when caught whilst the monitors will give a very severe bite, and a lash from one's tail is a thing to be avoided as in striking it is turned so that the knife-like dorsal keel is brought into play.

Some of the geckos, rock lizards and true lizards assume brighter colours during the mating season, which coincides more or less with the rains, but in the case of the geckos at any rate eggs appear to be produced all the year round. Whilst some lizards like the geckos never lay more than two eggs, others have as many as ten, whilst yet others are ovoviviparous which implies that the ovules undergo development within the maternal body and the young are born alive.

The vast majority of lizards are insectivorous, some few partly herbivorous but their dietary will be best dealt with under each species. In a short paper like this it will be quite impossible to describe each species and all that can be done is to give a brief sketch of the habits of the commoner ones typifying the various families. A brief key is appended so that anyone may determine to what family any Tanganyika Territory lizard belongs. Lizards of the various families are so distinct that one soon becomes familiar with their appearance and need not resort to a key but can classify a living lizard at sight.

As is probably known to most members of the T.E.C.S.A. species are grouped together with their nearest relatives in what are called genera; allied genera are associated to form families; related families are placed in orders and one or more orders may comprise a class.

The relationship of our lizards to other living reptiles may therefore be shewn thus:—

Class	*REPTILIA.*		
Orders			
CROCODILIA (Crocodiles and Alligators)	*RHYNCHOCEPHALIA* (Tuatera of New Zealand)	*CHELONIA* (Turtles and Tortoises)	*SQUAMATA* (Chameles, Lizards and Snakes).

Tanganyika Lizards are arranged in eight families of which the first is that of the geckos (*Geckonidae*). Everyone must be familiar with the house gecko, common in almost every building in Dar es Salaam, Tanga, Morogoro and Tabora. They live in the roof or on beams and descend the walls as soon as it is dusk finding plenty of food among the insects attracted by the artificial light.

It enjoys a wide distribution throughout the Territory on account of its adaptability to many and varied environments. On whitewashed walls it is pale, almost white in tone, on tree trunks and lichened rocks—olive, whilst when inhabiting hollow burnt out trees it is almost black in colour and on the trunks of baobab trees, which is a favourite haunt, they assume a mottled livery of grey blotched with dark brown or black.

I do not think it is generally known that daylight may be seen through a gecko's head if the ear openings happen to be in line with the light. I first noticed this in a gecko which used to come and lie on a certain bar just as the sun was setting.

Like the true lizards, (*Gerrhosaurus*) and the skinks, geckos very readily fracture their tail, the portion that is dropped wriggles and skips about for some time afterwards, the advantage of this is obvious for it may attract the attention of the gecko's foes and give the gecko time to escape. A new tail is very quickly produced but does not contain any caudal vertebrae only a continuous cartilaginous rod. When the fracture is incomplete it frequently results in a forked tail. I have met with such at Mombasa and Morogoro. The percentage of house geckos with regenerated tails is surprising, no less than twenty out of thirty-one collected at Morogoro being in this condtion.

On account of the fearless way in which it tackles many objectionable "insects" the house gecko is a great asset to any home. Whilst sitting at work one evening I heard a sharp

rapping at the far end of the verandah, it sounded precisely like the hammering of a rat's tail when trapped, the volume of sound was quite as large. On reaching the spot, however, I found a large gecko which had swallowed the greater part of a centipede, but three-eights of an inch remained in sight together with the caudal appendages. Disturbed by the light I was carrying the gecko paused for a minute, and then recommenced hammering the left side of its jaw on the wooden panelling, it then disgorged two inches of the centipede which I judged by its width to be about three inches long. It rested for a while with this object hanging limp and motionless from its mouth except for giving it an occasional knock. Presently it ran up a post and along the spouting of the gutter where with a few gulps it re-swallowed the whole. From the time when I became a spectator to the finish was something like ten minutes.

Another gecko which I shot on the trunk of a palm tree had a polydesmid in its mouth.

One evening my attention was drawn to a gecko which seemed to be struggling with something on the ground. On fetching a light I found it was flinging itself about and squirming over in an attempt to rid itself of a solpugid (*Solpuga darlingi*) which was holding the gecko in its jaws having gripped the head between eye and ear. The skin was all gone from this area and there were signs of bites on the right side and near the base of the tail. I surmise that the gecko had first attacked the solpugid but the latter would certainly have killed the gecko which already had two large black field crickets in its stomach.

Again one evening I heard a gecko thumping something against the wall outside and found it to be a large cricket. To prove what a noise they can make against a stone wall I measured the distance from the scene of the combat to where I had been sitting and found it to be twenty-three feet. Yet another time on hearing the hammering I ran out to find a gecko with a large male siafu or soldier ant. One could multiply such cases almost indefinitely but enough has been said to shew that the house gecko deserves protection and natives should not be allowed to kill them wantonly as they often do.

When mating, or when males are chasing each other, they utter a clicking cry 'Tchk, tchk.' The male seized the female by the neck in one case which I witnessed. The eggs are almost globular except for a flattening at the point of attachment; they are soft and sticky when laid, and thus adhere. The shell soon hardens and becomes brittle so that it is difficult to detach them from the bark without breaking them; the surface of the shells is finely granulated and the number produced at one time is two; in diameter they are from 10 to 12 mm.

Considering the size of the egg a newly emerged young one is surprisingly large measuring two-and-a-half inches.

They do not appear to have many enemies other than snakes. I apprehended a spotted wood snake in the act of swallowing one in a fowl house and a second snake of the same species which was caught in the thatch of a native hut disgorged a gecko which he had only just swallowed.

The species is particularly liable to red scarine parasites which are generally found scattered over the ventral surface.

There are five other species of the genus Hemidactylus, to which the house gecko belongs, in the Territory and though most of the others live beneath stones or in holes in the ground, their general habits are very similar to the above.

As an example of another important genus of geckos called Lygodactylus with five members in Tanganyika Territory one may cite the yellow-headed gecko, a common species on tree-trunks in the avenues of Dar es Salaam and Morogoro and most other places in the coastal belt.

I consider the coloration of this species protective, the body colour often assimilates that of the bark in the males and always in the females and the head I believe represents a patch of lichen. Like other geckos they can change their colour and I found a very black individual deep down in a termite's nest—a most unlikely spot. On being exposed to the light it soon regained its normal shades.

At Morogoro on 1. 1. 17 after heavy rains the sun was shining brightly and on almost every tree trunk in the acacia avenue were a pair of yellow-headed geckos. One pair were apparently courting, the male arching his neck in a most unusual manner so as to expose his throat and display the velvety-black gular patch and orange ventral stripe peculiar to the male. Every time he approached her the female chased him off. During the breeding season and for a good deal of the year the body colour of the male is a blue-grey, very distinct from the brown of the female which also lacks the brilliant yellow head though there is usually some trace of yellow upon hers.

Like most tree-dwelling creatures these geckos are very adroit in slipping round to the further side of the trunk, when approached, and then running up into the branches. They are therefore by no means easy to catch and the best method is to tie a white cloth round the bole of the tree at a height of about five feet from the ground before they have had time to get past it. Attract their attention by moving the fingers of the left hand whilst very stealthily approaching the right in which is a handkerchief or other piece of soft material which can then be dabbed upon them. In this way there is less risk of losing their tails.

The tails in members of this genus are provided with a wonderful sucker-like apparatus on the extremity, it serves as a fifth foot. If a gecko be struck on the back with a cane smartly so as to be instantly killed, it frequently falls over backwards but remains attached to the tree by the tailtip.

These geckos are much smaller then the house geckos and their eggs also may be easily distinguished as they only measure 5 and 6 mm. not always being quite round. They are usually laid on tree trunks but I have found them in heaps of rubbish and rotting palm leaves at Dar es Salaam. There are in all eighteen species of geckos in Tanganyika Territory of which the writer has collected fourteen but sufficient has been said to give a good general idea.

There are eight Rock-lizards in Tanganyika Territory all belonging to the genus Agama and the only representative of the family Agamaidae on the East African mainland. In appearance—apart from colouration—they are very similar, all having large heads with groups of spines about the ears and usually with a more or less well-defined crest on the nape.

The Red-headed Agama is perhaps the best known occurring in Mwanza and from Longido southwards to Dodoma but in each of these three localities the colouring is entirely different in the adult males and less noticeably so in the females. In the Mwanza form the adult male is a brilliant metallic purplish pink from the snout to just beyond mid-body; the fore-limbs from elbows to finger-tips and the whole of the hind-limbs and tail a very rich metallic blue, brighter below than above.

The Longido race has a brilliant scarlet head and the body bright ultramarine blue but on being killed such a specimen became entirely brown. In another individual just the reverse occurred. A brown Agama was basking on a rock and I struck it smartly across the back with a cane, it fell over with a little quiver with its back evidently broken and I transferred it to a bag. On reaching camp and removing it from the bag I was surprised to find the head a brilliant scarlet and the body bright blue.

The Dodoma race is characterised by a pear-shaped scarlet patch on the throat surrounded by a rich navy-blue border nine scales wide and this again is bordered on its outer edge by scarlet. The colouring is obviously sexual and is displayed by the males for the benefit of their mates by raising the head and exposing the fore-part of the body and throat.

The number of eggs produced is from six to eight and these are probably laid beneath stones or in holes dug by the female for the purpose, though I have never witnessed it personally.

I am almost inclined to say that this agama is primarily a vegetable feeder and only secondarily insectivorous. Many of the stomachs of Mwanza specimens had nothing but vegetable matter in them, others a mixture of vegetable and insect food. In the stomach of one from Singida District was a quantity of fruit called 'kosa' in Kinyaturu, in another the leaves of 'upilo'. Other indeterminate vegetable matter in many others also termites and ants of various species including I believe the stink ant. Of insects, ants appear to be their principal fare but it must be borne in mind that sott-bodied insects such as flies are so masticated that they are very difficult to find, a few beetle elytra were found and a single bug. I have watched this species catching termites as they emerged from their holes after a storm and a pair of these lizards biting off the sprouting green grass at the base of the rock on which they basked.

The stomachs of a very high percentage of these lizards are infected with parasitic nematode worms.

I found one of these lizards in the stomach of a large hawk and watched a female of the same species feeding its young one on an adult male on another occasion. Snakes would find them rather awkward food when full grown.

Not all of the species are rock-dwellers, however, the Black-collared Agama lives on tree trunks. This species has a huge head of a bright cobalt blue though in some individuals it is coppery green above with the throat only bright blue. The remainder of the body is also brightly coloured. It attains a foot or more in length.

It devours large quantities of ants. The largest number of eggs I have known in one female was ten.

The next family that of the Zonures or Girdled Lizards *Zonuridae* has had but three species recorded from this Territory of which the East African Zonure is a rusty red little lizard easily recognised by the strong whorls of spines around its tail, no other East African lizard except the much larger Gerrhosaurus major has such thorn-like spines on its tail. The Zonure rarely exceeds eight inches in length while the Gerrhosaurus major may be as much as twenty-one inches.

It is by no means common except perhaps at Morogoro where I took eleven specimens, two of these were found in a half-drowned condition in roadside gutters having evidently been washed out of some retreat by the heavy rains. Their favourite haunt appears to be hollow trees, in whose interiors they take refuge and from which it was a difficult matter to dislodge them. At Makindu a female was brought into camp in a hollow log which had been cut for fuel; she had remained in it in company with three egg-eating snakes whilst it was being chopped down. She had four large eggs in her ovary.

Termites were taken from the stomachs of four of the Zonures whilst a specimen which I have in captivity at the moment of writing is doing well on grasshoppers.

I found one individual in the stomach of a Bare-faced Hawk *Polyborides typicus* at Kipera Owing to their defensive spine it might be supposed that only a very hungry bird would molest them.

The other two members of this family are entirely different in appearance having very long snake-like bodies with greatly reduced and inconspicuous limbs. Their scales are lanceolate in shape and rough in appearance owing to the strong keeling of the scales. In *Chamaesaura tenuior* both pairs of limbs are distinct but the hind pair has no toes or rather ends in one. In *Chamaesaura miopropus* it is the forelimbs which are reduced to minute clawed vestiges.

There are three members of the next family, that of the *Vanidae*, in East Africa and all belong to the genus Varanus. These great lizards are commonly called 'goannas' or 'iguanas (of which the former word is a corruption) which is entirely a misnomer as the Iguanidae is a New World family with a few representatives in Madagascar but none on the mainland. The true name of these creatures is monitors, a name they have earned by their quickness of hearing which causes them to splash into the water when anyone approaches and thus warn the duller crocodiles.

The Nile Monitor is by far the commonest species and ranges from the Nile to the Cape. The largest male I have shot was fifty-five inches and the largest female fifty-and-a-half inches but they obtain to a much greater size.

Along the river-bank at Morogoro they were very common, though more often heard than seen. The first intimation that one was in the vicinity would be a rush through the undergrowth followed by a splash. If you were fortunate you might be in time to see the creature emerge on the opposite bank and crawl into its hole. At other points along the river where the banks were high and cliff-like they might be seen basking on some ledge or drawing themselves up with the aid of their powerful claws.

A good many were captured alive. The usual procedure was for me to wade down the river, with a native walking through the undergrowth along either bank a little in advance. On the monitor taking to the water, I remained quiet and watching were it emerged, marked down its hole. We could then dig out the hole until the creature was located at the terminus. The hole would then be closed with a shovel till only a small opening remained, large enough for its head to come through, but not to let the body pass if it made a rush

As soon as the head made its appearance, a widely-forked stick would be placed on it by a person standing directly above and the reptile thus held to the ground. The spade could then be removed and a few exciting moments followed as the creature struggled, scratched, and lashed about with its tail. As soon as a favourable moment occurred the tail would be seized with one hand, and with the other (wrapped in a cloth for preference) the monitor would be securely grasped by the neck and transferred to a sack. It is a most awkward creature to handle as it makes such good use of its claws to scratch with.

One large female was killed by falling from a very high tree, no branch fell with it, and the natives say that it is by no means uncommon for them to fall asleep when basking on a branch and forgetting their precarious position, move, and so lose their balance.

In the stomach of this specimen was a House Gecko, three large limicolarian shells, grasshopper legs, and some cartilaginous lumps that looked like the pads of a cat's claws—if so they had been picked up from some skin thrown away and rotting. Another Kilosa specimen had in its stomach twenty-two elephant hawk moth larvae, thirteen black coleopterous larvae and one cockchafer. Another contained crabs and a large quantity of mud. A young one from Ilonga held crab remains and two crickets. A Morogoro specimen had the remains of a toad in its stomach and another refuse meat from a cook house (which it used to visit daily at noon,) and some crab remains.

If they can gain admission to a fowl house they will plunder it of eggs, and photographs have been obtained of them systematically removing all the eggs from a crocodile's nest.

They are commonly afflicted with ticks of two species one of which is generally found about the anal opening. A worm *Tanqua tiara* was found parasitic in the stomach of a Morogoro specimen.

The white-throated monitor, a big brown fellow though the biggest specimen I obtained was only 28 inches, seems to haunt wooded places more than streams. I am told it occurs in the Uluguru Mountains, it is found at several places along the coast.

I have only obtained a single specimen of the Eyed Monitor and this was a male measuring four feet in length which was found crawling in a road outside Kilosa with blood issuing from its mouth. It had almost certainly fallen from a tall and solitary tree which was only a few feet away. Some months before a native had reported to me that he had seen a 'kenge' in this very tree.

Our next family that of the worm lizards *Amphisbaenidae* has a very puzzling distribution being found over the greater part of Africa (but not Madagascar), the Mediterranean countries, the West Indies and America. These peculiar worm-like creatures can wriggle backwards or forwards with equal facility and, as their name implies, the head and tail are very similar in appearance. Only five of these degraded or specialised lizards are known from Tanganyika Territory and practically nothing of their habits.

One of the writer's collectors dug up a specimen of *Geocalamus modestus* in sandy country south of Gulwe. This species was first described from Mpapua and I believe no other specimens were recorded for over forty years until he found one in the stomach of a Banded Mongoose (which of course had eaten it) at Usshora in the Mkalama District.

The body is divided into a number of segments or rings each of which is again divided into a number of squares representing aborted scales, true scales being only found upon the head in the East African species, though in one genus found elsewhere, which still retains short four-clawed fore-limbs, this is not the case.

The typical lizards *Lacertidae* to which the English Sand and Viviparous Lizards belong, next claim our attention. There are twelve forms in Tanganyika Territory of which the writer has only been able to obtain seven so far. Without doubt the commonest of these is Speke's Lizard named after the famous explorer. It enjoys a wide distribution throughout the Morogoro, Dodoma and Tabora districts.

It is a pale-brown little lizard of the same size as our English species and it has a dorsal stripe of cream colour which forks in the neighbourhood of the fore-limbs the two arms of the fork finishing on the back of the head in the parietal region. There are several similar white lateral lines and other markings which it is unnecessary to mention here. The underside like most typical lizards is pure white.

Four eggs were found in the ovary of a female at Morogoro in December 1917 and four in a Dodoma specimen on November 20th, 1921. I believe, however, that the species is ovo-viviparous. They prey upon termites and doubtless many other species of insects.

They have many enemies among birds as I have recovered them from the stomachs of a Kestrel, Augur Buzzard, Harrier and another large Hawk not yet identified. A greater Gerrhosaurus Lizard whilst in captivity was seen to seize and eat one of this species and another Gerrhosaurus known as the Yellow-throated Lizard came up and attempted to take it away

Another lizard running on the same ground near Morogoro Station as the last, also met with at Mwanza, is called Johnston's Lizard after Sir Harry Johnston who first discovered it in Nyassaland. In this species four parallel cream lines commence on the head and converge to form a single dorsal line on the tail. At first I had a little difficulty in distinguishing the two species when running about on sandy paths which they are fond of doing.

Latastia johnstoni, however, has a habit of rushing in one direction and then facing about with a little leap, so as to face the direction from which it came when disturbed. This little trick is very characteristic of the species. The tail is also noticeably longer, and has an illusory semi-transparent pinkish effect which disappears after death. During the breeding season (presumably) the colouring of both sexes becomes noticeably more brilliant shewing markings in bright yellow, red, black and china-white.

Two examples of Johnston's Lizard were found in the stomach of a Black-headed Heron but I have not recovered it from any other creature.

The Long-tailed Lizard is a member of the same genus as the last and is very numerous in sandy country particularly at Dodoma where they often attain a foot in length though two-thirds of this length is tail. They take up their abode in holes which they excavate at the foot of thorn bushes where they are difficult to get at. When disturbed however they seem to prefer dodging around close to the root of the bush and only take refuge in their holes when hard-pressed.

One Dodoma female had ten eggs in the ovary. Remains of beetles were common in their stomachs; one had a grasshopper, whilst another had gorged on a false-spider *Solpuga darlingi* and the remains of a false-spider's jaws were found in another individual. It is difficult to understand how they manage to overcome and eat such an unpleasant mouthful as a false-spider.

The *Gerrhosauridae* is a purely African family with but two species and a possible variety in Tanganyika Territory. Of these the Yellow-throated Lizard is the commonest being met with almost everywhere including Dar es Salaam, Morogoro, and Moshi. It attains a length of 20¼ inches which is the biggest male I have taken but of this the tail measured 14½ inches It is a big strong lizard and is often heard rustling in the grass by the side of a path when most people mistake it for a snake, particularly so if they catch a glimpse of its tail, which being long and tapering is very snake-like.

A brief description of the colouring of this handsome species will be necessary. The general colour above is nut-brown. A yellow vertebral line bordered by black lines commences on the back of the head and continues three-quarters of the way along the tail. There is a series of black spots along the back between the vertebral and dorsal lines. Sides scarlet, alternate scales being brown and yellow so as to form vertical stripes. Under surface pure white. This description was made from a specimen taken at Kilosa.

For several days in succession I had seen this lizard disappear into a burrow at the base of a bush, it had only come to occupy the burrow quite recently as I knew because I passed the spot four times daily. Apparently it had cleaned out the burrow before occupying it as my attention was first attracted by the heap, and little slide, of fresh earth at the entrance. Thinking it might be lying in the hole I got my native collector to make a snare at the entrance of the burrow which twice caught the occupant but he wriggled free. The laborious process of digging it out was therefore resorted to and the burrow found to be over a yard in length with two smaller blind alleys opening off it.

Four eggs, measuring $\frac{7}{8}$ inch each in length were found in the ovary of a female taken at Morogoro on 4.1.17. I believe that the species is oviparous but am by no means certain. They subsist chiefly on grasshoppers and are therefore a useful asset to a country where these often amount to a pest. Unfortunately one of the worst grasshoppers in a shamba is the gaudily coloured red-and yellow *Zonoceros elegans* which few lizards will take on account of its nauseous taste though various species of Rollers among the birds will make short work of them.

In the stomach of a Kingfisher *Halcyon orientalis* shot at Dar-es Salaam I found a young Yellow-throated Lizard and another in the stomach of a Harrier *Circus macrurus*. The adults are less likely to be molested as they are powerful, but an 18-inch specimen that had died, was swallowed by a Hissing Sand Snake in captivity.

The Great Gerrhosaurus is totally unlike its near relative. It is a big brown lizard, easily recognised by the great whorls of spines on its tail with some blue on its thoat. It occurs at Zanzibar, Morogoro and Dodoma being chiefly found in association with rocks under which it has its retreats. At Luguo in Mkalama they were particularly numerous in the shambas where scattered rocks occur. In size they far exceed the Yellow-throated species being but a few inches short of two feet but the tail constitutes only half of the measurement so that the animal is much larger.

During a bush fire I have known this species retreat into a hollow log and though the fire raged with great heat around and against the log (which became full of smoke being open at both ends) the animal emerged when the conflagration was over none the worse.

In Mozambique I have taken this species from holes in termite heaps; in one instance two mongoose *Halogale ivorii* were occupying the same burrow, all three animals being found huddled together at the end of the hole. Another was found in the company of a six foot snake *Rhampiophis oxyrhynchus.*

The examination of the stomach of one of these specimens revealed small beans and grass with a single beetle leg to have formed its last meal. It was also afflicted with tapeworms of which there were no less than five measuring a foot long each.

The Skinks *Scincidae* enjoy a cosmopolitan distribution with their headquarters in Australia and no less than twenty-eight of the eighty Tanganyika species belong to this dominant family. Like the Gerrhosaurus they have a bony cuirass beneath their scales which are very highly polished and give them a distinct appearance so that members of this family may be readily recognised by anyone well acquainted with one or two forms.

The commonest of them and at the same time the commonest lizard in the country is the Striped Skink which shews a remarkable power of adaption to any habitat, arboreal or terrestial. At Dar es Salaam they are to be seen basking head downwards on the stems or leaves of the cocoanut palms. The native grass-roofed huts are also a favourite spot, but it adapts itself equally well to the stone-built dwelling of the European, emerging from holes in the masonry to bask on window-sills or on the galvanised iron roof. In one house in which the writer lived they used to make a great racket in the roof-guttering, where they could chase each other. On putting on my slippers on one occasion, I found the toe of one occupied by a Striped Skink, it having evidently retired there to spend the night, as it was evening. Rockeries and rubbish tips afford good refuges, and they fall easy victims when found inside old tins in the latter situation, which is often the case.

They are also very active. On one occasion at Kilosa I heard a rustle in the roof-gutter and this was followed by a plop in a bush four feet from the gutter, I was just in time to see the Skink recover its balance and run quickly down the stalks and stem of a bush till it reached the ground which it crossed with a rush to the stump of a tree up which it darted as if a first-class arboreal species.

The largest specimens of both sexes were just under ten inches in length. The young are produced alive from ovules which develop in the mother. Pregnant females have been found from October to December, the largest number of young which I have found in any one specimen was seven and each of these little creatures when uncoiled measured about two-and-a-half inches in length.

At Morogoro I have seen one of this species running along with the nauseous and gaudy grasshopper already referred to in its mouth, whether it would have eaten it eventually of course I cannot say. After sunset one day I was sitting on the river bank when a Skink emerged from its hole just beside me and snapped the head off a millipede which was also out for an evening stroll. Grasshoppers, a beetle and a snail were found in another specimen.

A Lesser Stink Ant, *Paltothyreus tersatus*, came running home with a crumb as large as itself when a half-grown Striped Skink ran to meet it, seized the crumb and gave it a terrier-like shake, the ant let go and retreated, the lizard dropped the crumb; the ant hurried back, seized it, and made a dash for its hole the lizard giving chase but failing to catch it. Another skink was seen to capture a large hawk moth and dart with it into a crevice in the wall. Examination of five stomachs gave the following results (i) Ants, (ii) Termites, (iii) Cockroach and two large Wolf Spiders, (iv) a Beetle and three Bugs (*Lygaeus sp.*), (v) beetle elytra and millipede rings of 4mm. diameter. The faeces of another held the remains of a green-bottle fly and a moth.

On three occasions this skink was found in the stomach of hawks at Morogoro, viz: Kestrel (*Gerchneis tinnunculus*), Buzzard (*Buteo b rufiventris*), and Harrier (*Circus macrurus*). Some cats are very fond of harrassing these skinks for fun. One such, having caught a skink and brought it into the house, twice released it and recaught it, yet the lizard did not drop its tail. I held the cat up by her tail until she released the skink, and, though she had chewed it, when dropped it ran away and escaped into the garden. Somehow she managed to find it again, and brought it into the house in a dying condition, its tail still intact!

Like the House Gecko this species often has red acarine parasites about its anus, groin, axilla and ears. I have also removed a large grey cattle tick from a skink's earhole which it completely blocked up. Nematode worms (*Cochoristica sp.*) were found in the stomach of another individual.

Another species closely related to the last but not more than seven inches in length is the Variable Skink which can be readily distinguished from the last by the numerous white specklings on its back between the three (usually) dorsal stripes of a whitish

or creamy colour. It is also more bronzy in ground colour than the last. They are widely distributed all over the Territory wherever there are rocks though sometimes they may be found on stumps in bush with no rocky outcrops, they seem to be more numerous on mountains whether because rocky outcrops are more often found on such or because of the altitude, I cannot say.

They are ovo-viviparous producing from three to seven young at a time and apparently regardless of the time of year. Of fifteen stomachs which I examined every one contained termites and as far as I could see the only other food that had been taken was a spider whose limb was found in one.

No less than nine other species of the genus *Mabuia* (to which these two belong) were collected, but the habits are similar though one is addicted to climbing trees and another is fond of clambering about in the tops of long grass. Some are very brilliantly coloured in orange or blue.

Sundevall's Skink may be taken as an example of the next genus (*Lygosoma*) also a very large one. This species is some what snake-like in form and several Europeans have mistaken them for snakes though on being picked up they are readily seen to possess four well-developed if somewhat small limbs. This is the famous genus amongst whose members there are species with five, three, and two toes and one with but a pointed stump of a limb illustrating well the loss of limb which follows when a lizard takes to burrowing into soil by wriggling in a snake-like or worm-like manner.

A manure heap is one of the best localities for catching this species and some of the finest specimens were found among the stones of a camp incinerator which was being demolished; beneath stones, especially where there is an ant or termite nest, and accumulations of garden rubbish are also spots much favoured by Sundevall's Skink. When disturbed they wriggle in a very snake-like fashion and soon bury themselves in loose soil.

The largest specimen was just under ten inches but the average of fifty was a little under six. The colouration is extremely variable from brown to a purplish shade with or without spots and other markings. Beneath, some are pure white, others spotted. Perhaps the easiest way to recognise it is by the tail which is as thick as the body for most of its length and then tapers rapidly to a fine point which doubtless assists it in burrowing like the spiny tip on the tail of Blind Snakes and Burrowing Vipers. This will not distinguish it from Ferrandii's Skink found in the Dodoma District and near Longido which is suitably coloured for its life in desert-like thornbush steppe.

Four would appear to be the maximum number of ovules developed at one time but whether they are produced as eggs or young I am not certain though the latter is most probable.

Natives often kill them on account of their snake-like appearance but Europeans should seek to foster them in their shambas on account of their diet. Those taken from the incinerator certainly ably seconded the efforts of the sanitary staff as of a large number examined the majority were found to have dined off freshly-emerged bluebottles before their wings were developed and even pupae cases were found! The pupae and imagines of house flies, a beetle, a lizard's tail and lizard's scales. The two specimens whose stomachs contained remains of a lizard had probably been feeding on Wahlberg's Skink which was common at the same spot.

Wahlberg's Skink is usually less than four inches in length and of an almost uniform pale coppery colour unless subjected to close examination when markings are distinguishable. It is widely distributed being found in every place I have yet visited I believe. It retires beneath stones and logs and may often be seen sunning itself or moving about in the dead vegetation alongside paths.

The largest number of eggs found in any one female was six and these measured 6 x 3 mm. The principal food appears to be termites though a fly, a beetle larva, and a field cockroach were also found in their stomachs.

A specimen caught at Handeni by the neck whirled its tail round very rapidly, and then making it suddenly rigid, caused it to break off; the tail exhibited considerable vitality, wriggling and jumping about for some time.

One of these lizards was found in the stomach of a Cattle Egret *Bubulculus ibis* and another in that of an East African Green Snake *Chlorophis neglectus*.

Another member of the same genus *Ablepharus* as the last has taken to an entirely different life to its relative. At Dar es-Salaam and many other places along the coast where coral rag is exposed to the waves this fragile looking little lizard may be seen running back before the incoming waves or taking refuge in fissures of the coral formation.

I know of no English name to call it by but it is known to science as *Ablepharus boutoni var. peronii* and the largest of seventy-one specimens I collected along the coast from British to Portugese East only measured four-and-three-eighths of an inch. It is greenish or olive-bronze in colour with two light lateral lines along the sides, almost on the back.

Their food is naturally very different from that of their relative inland. Sea-slaters of large size were found in one sandhoppers in another and many had dined off flies. A tapeworm was parasitic in the stomach of the one that had eaten sea-slaters.

These skinks and several others which are limbless and burrowing have, like snakes, no movable eyelid, their eyelid being transparent and permanently fixed over the eye as a watch glass is over a watch. The advantages of this arrangement to a burrowing reptile are so obvious that they need not be dilated on.

Only one species *Feylinia currori* represents the very aberrant family of degraded burrowing skinks called *Anelyropidae* which is so closely related to the last family that many systematists include it in the *Scincidae*. The above-named species is only found in the western portion of the Territory being, I believe, only recorded from Bukoba District as yet.

SYNOPTICAL KEY FOR DISTINGUISHING THE FAMILIES OF TANGANYIKA TERRITORY LIZARDS.

I. Upper surface of the head with scales or granular tubercles.
  A. Tongue short with villose papillae.
    No movable eyelids; teeth fused to inner side of jaw ... ... *Geckonidae*
    Movable eyelids; teeth welded to summit of jaw ... ... *Agamidae*
  B. Tongue long, smooth, deeply bifid.
    Size large ... ... *Varanidae*

II. Upper surface of head with large or symmetrical shields.
  A. Tongue with villose papillae; femoral pores ... ... *Zonuridae*
  B. Tongue with scale-like imbricate papillae or oblique plicae.
    Body wormlike; scales soft, squarish not overlapping ... ... *Amphisbaenidae*
    No bony plates under the scales; pores on inner surface of thighs usually present ... ... *Lachertidae*
    Bony plates under the scales; a lateral fold; pores on inner surface of the thighs ... ... *Gerrhosauridae*
    Bony plates under the scales; no lateral fold; no pores; eyes distinct *Scincidae*
    Bony plates under the scales; body wormlike; eyes concealed beneath the skin ... ... *Anelytropidae*

In case any members desire to preserve lizards the following points should be remembered

(1) On no account should the head be damaged as it is essential for purposes of identification.

(2) Make an incision in the belly with a safety razor blade, if stomach is very full it should be removed with a pair of forceps and replaced by a scrap of absorbent cotton wool to retain its shape.

(3) Large lizards such as Gerrhosaurus should have a sharp knife plunged into each limb and the tail to allow preservative to enter. Bear in mind the tail is very brittle.

(4) Immerse in 5% formalin solution, approximately one part of commercial formalin to six parts of water. Use plenty of mixture not just enough to cover it. If desired a fortnight later it can be transferred to a 3% solution.

(5) Locality and date can be written in pencil (not copying) on a tag and tied to hind leg.

The writer will be pleased to identify any specimens for members. If it is desired that they should be returned, postage for return should be sent.